## AMENDMENTS TO THE DRAWINGS

With reference to the attached replacement sheet, the drawings have been amended as follows:

Sheet 5, FIG.8: switch 148 has been redrawn in the open position to correspond to the description included in paragraph [0069].

## REMARKS

Claims 1 and 4-26 are currently pending in this application. Claims 2 and 3 have been canceled. Claims 1, 4, 6, 7, 9-12, 14, 20-22, 24 and 25 have been amended. No new matter has been added by these amendments. Applicants have carefully reviewed the Office Action and respectfully request reconsideration of the claims in view of the remarks presented below.

### Examiner Interview

An interview with the Examiner occurred on September 20, 2006. The purpose of the interview was to obtain clarification from the Examiner regarding the interpretation of U.S. Patent No. 6,208,896 (Mulhauser) set forth in paragraph 5 of the Office Action. The Examiner clarified the interpretation as follows: With reference to figure 4 of Mulhauser, the H-bridge at the left side of the figure is considered a voltage supply circuit; the voltage across the load resistor 480 (*e.g.*, patient) is considered the output voltage and the circuitry to the left of the H-bridge, including capacitors 410 and 460, is considered the voltage supply. Applicants thank the Examiner for the clarification provided during the interview.

### Claim Objections

Claim 10 was objected to for reciting "each leg including output voltage modulating device." As amended, claim 10 no longer recites this feature, therefore the objection is believed to be overcome.

### Claim Rejections Under 35 U.S.C. §112

Claim 9 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the claim was rejected because of the lack of clarity with respect to the phrase "back diode." Claim 9 has been amended to recite "blocking diode."

Claim Rejections Under 35 U.S.C. §102

Claims 1-7, 9-11, 13-17, 20-23 and 25 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,208,896 (Mulhauser).

Independent claim 1 relates to an output circuit for use in an implantable cardiac stimulation device. The circuit includes an output adapted for connection across a load; a voltage supply switchably coupled across the output; pulse-width modulation circuitry operative to provide a pulse waveform; and a first switching device operative to receive the pulse waveform, and alternately couple and decouple the first voltage supply across the output in accordance with the pulse waveform to provide a stimulation output having a pulse-width modulated waveform.

Independent claim 13 relates to an output circuit for use in an implantable cardiac stimulation device that includes a voltage supply circuit that provides an output voltage and a control circuit comprising an H-bridge that pulse-width modulates the output voltage to provide a stimulation output having a pulse-width modulated waveform, the H-bridge comprising a plurality of legs, each leg including a stimulation output polarity control device and a stimulation output modulating device.

Independent claim 20 relates to an output circuit for use in an implantable cardiac device that includes an output adapted for connection across a load; a power source switchably coupled across the output; a pulse-width modulation circuit that generates a pulse-width modulation control signal corresponding to a desired waveform; and an H-bridge including a first leg and a second leg, each leg including a pulse-width modulation control device operative to receive the pulse-width modulation control signal, and alternately couple and decouple the power source across the output in accordance with the control signal to provide a stimulation output having the desired waveform.

Mulhauser discloses H-bridge switches or control devices (470, 472, 474, 476) that operate to change the polarity of an output voltage across an output (*e.g.*, the terminals of load resistor 480) while always maintaining either a positive or a negative voltage across the output (580). These switches or control devices, therefore, are not

operative to decouple the voltage supply (*e.g.*, capacitor 460) from the output – as recited in claims 1 and 20. Furthermore, because these H-bridge switches or control devices function only as polarity control mechanisms, they cannot be interpreted as two separate elements, *i.e.*, both a stimulation output polarity control device and a stimulation output modulating device – as recited in claim 13.

Isolation relays (482, 484) of Mulhauser are operative to decouple the voltage supply from the output. Mulhauser, however, does not teach or suggest that these switches are operated in accordance with a pulse waveform – as recited in claims 1 and 20. Mulhauser also discloses a buck switch (415) and a boost switch (440), each of which receives a pulse waveform (520, 540) from a controller (115). While these switches function to provide a rectilinear shape (581, 582) to the output voltage (580) provided by the voltage supply, they do not decouple the voltage supply from the output – as recited in claims 1 and 20.

In view of the foregoing, Applicants submits that Mulhauser fails to disclose the combinations of elements and features recited in independent claims 1, 13 and 20, including at least, a first switching device or pulse-width modulation control device operative to receive a pulse waveform, and alternately couple and decouple a first voltage supply across an output in accordance with the pulse waveform (claims 1 and 20) or an H-bridge comprising a plurality of legs, each leg including a stimulation output polarity control device and a stimulation output modulating device (claim 13). Accordingly, Applicants request reconsideration of the §102 rejections of claims 1, 13 and 20.

Applicants further submit that, in view of their incorporation of subject matter recited in their respective independent base claim, each of dependent claims 4-7, 9-11, 14-17, 21-23 and 25 is also novel over Mulhauser. Aside from the foregoing basis of novelty, Applicants believe that additional novel subject matter is recited in dependent claims. For example, regarding claims 7 and 25, Mulhauser does not disclose a capacitor coupled across an output that is operative to receive current from a voltage supply/power source when the voltage supply/power source is coupled across the

output and to supply current to the output when the voltage supply/power source is decoupled across the output.

Regarding claims 10 and 14, Mulhauser discloses an H-bridge that receives an open/close control signal (505, 510) from a controller (115). It does not disclose an H-bridge with a switching device that is operative to receive a pulse waveform, or an H-bridge having a stimulation output modulating device coupled to a pulse-width modulation circuit.

Regarding claim 22, Mulhauser discloses an H-bride with a plurality of polarity control devices. It does not disclose an H-bridge with a plurality of legs, each leg including a pulse-width modulation control device.

Claim Rejections Under 35 U.S.C. §103

Claims 8, 18 and 26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mulhauser. Claims 12, 19 and 24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mulhauser.

In view of the foregoing analysis of independent claims 1, 13 and 20 with respect to Mulhauser, Applicants believe the rejections under §103 are rendered moot as each of dependent claims 8, 12, 18, 19, 24 and 26 depends from an allowable independent base claim.

## CONCLUSION

Applicants have made an earnest and bona fide effort to clarify the issues before the Examiner and to place this case in condition for allowance. Therefore, allowance of Applicants' claims 1 and 4-26 is believed to be in order.

Respectfully submitted,

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Date

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